REMARKS

Favorable reconsideration of this application as presently amended and in light of the following discussion is respectfully requested.

After entry of the foregoing Amendment, Claims 7, 8, 10, 11, 13, 14, 16, 17, 19, 20, 28, 29, 31, 32, 34, 35, 37, 38, 40, 41 and 50 are pending in the present Application. New Claim 50 is added, support for which is found at least at page 25 of the specification. No new matter has been added.

By way of summary, the Official Action of October 12, 2006 presents the following issues: Claims 1-3, 5-24, and 26-41 stand rejected under 35 U.S.C. § 102 as being anticipated by Sakoda et al. (U.S. Patent No. 6,563,881, hereinafter Sakoda); and, Claims 4 and 25 stand rejected under 35 U.S.C. § 103 as being unpatentable over Sakoda.[1]

REJECTION UNDER 35 U.S.C. § 102

The outstanding Official Action has rejected Claims 1-3, 5-24, and 26-41 under 35 U.S.C. § 102 as being anticipated by Sakoda. The Official Action contends that Sakoda describes all of the Applicants' claimed features. Applicants respectfully traverse the rejection.

In response to Applicant's Amendment filed January 31, 2007, with regard to the currently pending claims, the Advisory Action noted in paragraph 4 on page 3 that:

> As noted in the rejection for claims 7 and 28, Sakoda et al. discloses enabling a transmission rate of the information to be changed **[e.g., see col. 6, lines 4-8; col. 6, line 66 to col. 7, line 10; and col. 9, lines 12-28 regarding transmission rates]** by controlling multiplex transmission intervals along a time axis **[e.g., see col. 10, lines 15-44 regarding time axis, and see col. 12, lines 3-16 regarding multiplexed transmission]** for each user to which information is to be transmitted **[e.g., see col. 6, line 66 to col. 7, line 10; col. 9, line 10 to col. 22, line 7; and col. 25, line 59 to col. 28, line 13]**.

[1] As these claims are cancelled, this rejection is rendered moot.

The above noted explanation identifies various portions of the Sakoda reference which describe the conversion between one or more data rates such as 32 kbps, 64 kbps, 96 kbps, and 128 kbps. As previously pointed out, a null symbol insertion unit is provided to make a symbol rate equal to a maximum transmission rate irrespective of the original bit stream. This is nothing to do with the Applicants' claimed feature of enabling a transmission rate of the information to be changed by controlling multiplex **transmission intervals along a time axis for each user to which the information is to be transmitted**.

At paragraph 5 of the Advisory Action, it is noted that:

> Controlling the multiplex transmission intervals is defined as spreading the symbols into sub-carriers having different frequencies.

This definition adopted by the Official Action is confusing as it is in direct conflict with the claim language. The claims expressly recite that sub-carrier transmission is utilized employing sub-carriers have different frequencies. However, it appears as though the Official Action is ignoring the remainder of the Applicants' claims which additionally recite that the transmission rate is changed by controlling transmission intervals along a time axis for each user to which the information is to be transmitted.

With respect to paragraph 6 of the Advisory Action, Applicants note that the argument noted in this paragraph was not advanced by the Applicants. To this end, Applicants noted that in the previous response that:

> Thus, as noted in the Applicants' specification at page 25, an **advantage of this claim feature** ...[2]

Accordingly, it is clear from the plain language of the previous response that the explanation regarding the use of Sakoda's null symbols was merely added in an effort to

[2] See Response of January 31, 2007, paragraph bridging pages 9-10.

clarify the features of the currently claimed advancement and their **beneficial application** in an exemplary embodiment of the Applicants' claimed advancements.

With respect to paragraph 7 and 8, Applicants note that the portions of Sakoda cited in these paragraphs is directed toward the operation of a channel selection unit (173). This unit ensures that all signals of multiplex channel are properly separated. Thus, in operation, the computation unit (202) is utilized which includes delay processing and comparison circuitry for recovering the separate channels. The ¼ modulation time refers to a comparison processing time to separate channels with respect to delay circuitry. These portions of Sakoda in no way relate to the Applicants' claimed modulation level number control structure which controls the number of modulation levels used when information symbols to be spread are obtained through modulation.

Accordingly, arguments and distinctions presented in the previous response are reiterated below for further clarifying the claimed advancements.

For example, Claim 7 recites, *inter alia*, a multi-carrier CDMA radio transmission method, including:

> . . . enabling a transmission rate of the information to be changed by controlling multiplex transmission intervals along a time axis for each user to which the information is to be transmitted. (emphasis added)

Sakoda describes a radio telephone system for transmitting data at rates of 32 kbps, 64 kbps, 96 kbps, and 128 kbps. As shown in Fig. 6, communication is conducted in each of these set channels using a multi-carrier signal having transmission symbols distributed among a plurality of sub-carriers. The transmission symbols of each channel of the plurality of set channels are arranged at intervals of N^{th} power of 2, where N is an arbitrary positive number,

with respect to a reference frequency interval.[3] To this end, a coding unit (102) is provided for coding an information bit stream with a predetermined coding rate. Each bit coded by the coding unit is supplied to a symbol mapping unit (103) and mapped to transmission symbols therein. The transmission symbols generated by the mapping unit are supplied to a null symbol insertion unit. The null symbol insertion unit performs processing to make the symbol rate equal to the maximum transmission rate constantly irrespective of the transmission rate of the original information bit stream by regularly inserting symbols having amplitude of zero depending on the transmission rate obtained at the time.[4]

Conversely, in an exemplary embodiment of the Applicants' advancements as recited in Claim 7, a transmission rate of information is changed by controlling the amount of multiplex transmission intervals along a time axis for each user to which the information is to be transmitted. Thus, as noted in the Applicant's specification at page 25, an advantage of this claim feature is that when the transmission rate is to be increased, intervals of data transmission (interval between each adjacent data transmission) are shortened. In this way, the information transmission rate is controlled by controlling the intervals of data transmission.

As Claim 20 recites substantially similar limitations to that discussed above, Applicants respectfully submit that this claim and any corresponding dependent claims are likewise distinguished over the cited reference.

Further, Claim 8 recites, *inter alia*, a multi-carrier CDMA a radio transmission method, including:

> . . . enabling a transmission rate of the information to be changed by controlling the number of modulation **levels** used when the information symbols to be spread are obtained through data modulation. (emphasis added)

[3] Sakoda at column 9, lines 10-26; Fig. 6
[4] Sakoda at column 9, lines 41-49.

As noted above, in an exemplary embodiment of the Applicant's clamed advancement recited in Claim 8, a transmission rate information is changed by controlling the number of modulation levels used when the information symbols to be spread are obtained through data modulation. Thus, as noted in the Applicant's specification at page 26, an advantage of this claim feature is that when the transmission rate is increased, the number of modulation levels may be increased. For example, by modulating the transmitted data by 16 QAM **(the number of modulation levels: 16) or 64 QAM (the number of modulation levels: 64)**. Sakoda merely describes the different modulation schemes may be utilized for transmitting data. Likewise, as independent Claim 29 recites the substantially similar limitations to that discussed above, this claim and any corresponding dependent claims are also distinguishable over the cited reference.

Accordingly, Applicants respectfully request that the rejection of Claims 7, 8, 10, 11, 13, 14, 16, 17, 19, 20, 28, 29, 31, 32, 34, 35, 37, 38, 40 and 41 under 35 U.S.C. § 102 be withdrawn.

NEW CLAIM

New Claim 50 has been added to recite a more detailed aspect of the Applicants' claimed advancements wherein the intervals are adjusted prior to spreading. The cited reference does not disclose or suggest this more detailed aspect of the Applicants' claimed advancements.

CONCLUSION

Consequently, in view of the foregoing amendment and remarks, it is respectfully submitted that the present Application, including Claims 7, 8, 10, 11, 13, 14, 16, 17, 19, 20, 28, 29, 31, 32, 34, 35, 37, 38, 40, 41 and 50, is patently distinguished over the prior art, in condition for allowance, and such action is respectfully requested at an early date.

Respectfully submitted,

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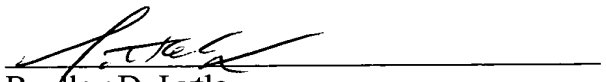

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